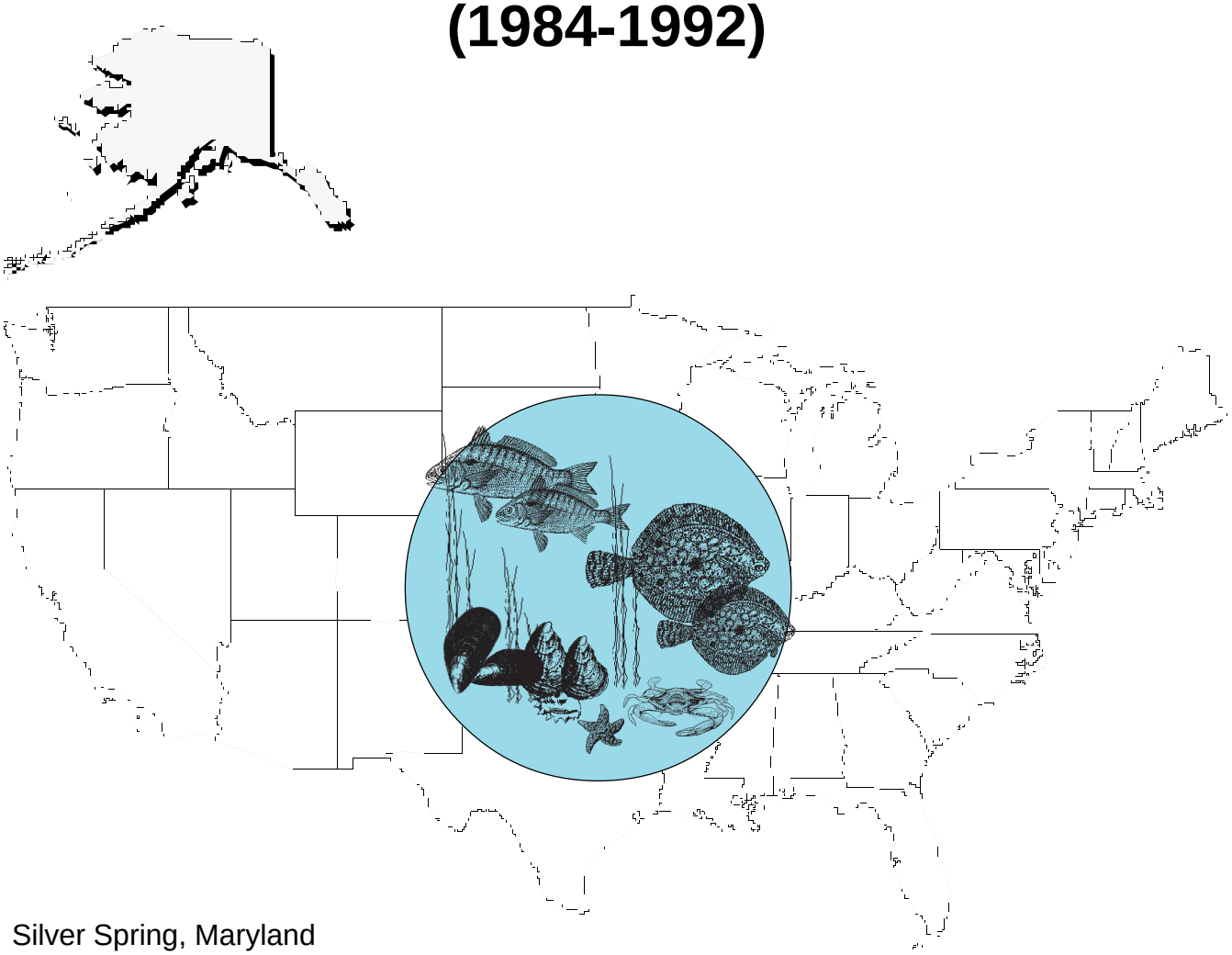
NOAA Technical Memorandum NOS ORCA 124

National Status and Trends Program
for Marine Environmental Quality

A Summary of Chemical Contaminant Levels at Benthic Surveillance Project Sites (1984-1992)



Silver Spring, Maryland
February 1998

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Coastal Monitoring and Bioeffects Assessment Division
Office of Ocean Resources Conservation and Assessment
National Ocean Service

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Notice

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About this Report

This report summarizes fish and sediment metals and organics data collected by the National Status and Trends (NS&T) Program Benthic Surveillance Project from 1984 to 1992. The data are shown by region and site. Species are summarized in relation to each other as well as to contaminant concentrations found at all other NS&T sites around the United States. This summary is intended to provide information to assist local and state resource managers evaluate contaminant conditions in their areas and place those conditions in perspective to those throughout the nation.

In response to the need for information assessing the effects of human activities on environmental quality in coastal and estuarine areas, and the need to develop management strategies to deal with these conditions, the Coastal Monitoring and Bioeffects Assessment Division (CMBAD) of the National Oceanic and Atmospheric Administration (NOAA) initiated, in 1984, the National Status and Trends (NS&T) Program. The purpose of this program is to determine the current status and detect changes that are occurring in the environmental quality of our nation's estuarine and coastal waters. Because of concern over inputs of contaminants to U.S. coastal waters, it was decided to focus the program initially on these substances and their effects. Major components of the NS&T Program include: the **Mussel Watch Project,** the **Benthic Surveillance Project, Bioeffects Surveys, Historical Trends, Coastal Contamination Assessments,** the **Quality Assurance Project,** and **Specimen Banking**.

As part of its nationwide monitoring, the NS&T Program monitors the levels of more than 70 contaminants and certain associated effects in biota and sediments. It provides data for making spatial and temporal comparisons of contaminant levels to determine which regions around our coasts are of greatest concern regarding existing or developing potential for environmental degradation. It includes measurements of concentrations of 24 polycyclic aromatic hydrocarbons (PAHs); 20 congeners of polychlorinated biphenyls (PCBs); DDT, its breakdown products DDD and DDE; nine other chlorinated pesticides; butyltins; four major elements; and 12 trace elements in sediments, mussels, and oysters at over 240 coastal and estuarine sites by the **Mussel Watch Project**. Additionally, determinations of the levels and effects of the same chemicals in the livers of bottom-dwelling fish and associated sediments are made by the **Benthic Surveillance Project** at over 100 sites (refer to the map inside back cover). The frequency of external and internal disease conditions in the sampled fish is documented and data from all monitored sites are stored in the NS&T Data Base. This information is analyzed and made available to coastal and marine resource managers and the public in a variety of reports and publications (over 400 to date).

Sampling and analyses for the NS&T monitoring projects are performed using well-documented methods and techniques, so that a known level of confidence can be assigned to all data. Analytical procedures adhere to the standards of its **Quality Assurance Project**, established for all laboratories participating in the NS&T Program. Selected samples collected as part of the NS&T's **Specimen Banking** are preserved in liquid nitrogen and stored at -150 °C. A specimen archive of these samples has been established at the National Institute of Standards and Technology (formerly the National Bureau of Standards) in Gaithersburg, MD. Specimens from the archive will be available for retrospective analyses as new analytical techniques become available and perceptions of environmental quality issues change.

In 1986, the NS&T Program initiated **Bioeffects Surveys** in those regions where NS&T analyses indicated a potential for substantial environmental degradation and biological effects due to contamination. Most studies focus on living marine resources, especially bottom-dwelling fish. Studies are done on such subjects as reproductive impairment, genetic damage, sediment toxicity, refinement of methodologies, and evaluation of new indicators of contamination (DNA damage and enzymatic activity in fish livers), as well as on the relation of such effects to contaminant concentration gradients.

Historical Trends synthesizes available data and ancillary information pertaining to the trends of toxic contaminants in regions of concern. Recently, the NS&T Program added sediment coring to better assess the trends of chemical contaminants. For many areas of concern, the NS&T data have been used to develop **Coastal Contamination Assessments**, which place regional contaminant findings for specific sites in perspective with chemical concentrations around the nation.

Data Availability

The data presented in this report, as well as additional data (see Table 1) from NOAA's National Benthic Surveillance Project and other NS&T projects, are available electronically from the Coastal Monitoring and Bioeffects Assessment Division or on ORCA's Internet Information Service located at **http://seaserver.nos.noaa.gov/projects/nsandt/nsandt.html**.

A SUMMARY OF CHEMICAL CONTAMINANT LEVELS AT BENTHIC SURVEILLANCE PROJECT SITES (1984 - 1992)

National Status and Trends Program
MARINE ENVIRONMENTAL QUALITY

January 1998

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Acknowledgments

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